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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

G. Patrick Stahly  
Kenneth R. Morris  
Barbara C. Stahly  
David Coates

Application No.: 09/752,857

Filed: December 28, 2000

Examiner: Y. Gakh

Group Art Unit: 1743

For: METHODS OF SEARCHING  
FOR SOLID FORMS AND  
SCREENING A SAMPLE  
ACCORDING TO ITS FORMS

Commissioner for Patents  
Washington, DC 20231

Sir:

1. I am Chief Operating Officer and Vice President of Research and Development at SSCI, Inc., in West Lafayette, Indiana. I am also a shareholder of SSCI, Inc. SSCI is a company that carries out contract research primarily in the pharmaceutical industry related to the chemistry of drugs. I have been at SSCI since October 1995. Among my duties, I am responsible for and supervise all scientific work performed at SSCI.

2. I am an Adjunct Professor in the Department of Industrial and Physical Pharmacy at Purdue University where I have taught graduate-level pharmacy courses and have sat on Ph.D. thesis committees. I am also a topic editor of *Crystal Growth and Design*, a new journal of the American Chemical Society, which publishes papers related

to crystallization methodology and solid forms. In addition, I am the author of about 25 scientific journal articles and am a named inventor on about 40 U.S. patents relating to synthetic methods and new chemical compounds. I am also an author of a chapter in the *Handbook of Pharmaceutical Analysis* on solid forms that discusses, among other things, methods of analyzing solid forms.

3. I received a Ph.D. in organic chemistry from the University of Maryland in 1979. From 1980 until 1995, I was employed by the Ethyl Corporation (later the Albemarle Corporation) in Baton Rouge, Louisiana as an organic chemist. Since 1995, I have been employed at SSCI.

4. I am a named inventor on U.S. Application 09/752,857 which is directed to methods of searching for solid forms and screening a sample according to its form. I have assigned my interest in the application to SSCI. The presently claimed methods use capillary spaces, as defined in the specification, to screen for solid forms. One way of generating a solid form is to solidify a sample within a capillary space. For example, example 1 teaches how to generate solid forms of 4-(6-methoxy-2-naphthyl)-butan-2-one (Compound A).

5. In that example, solutions of these materials in different solvents and at different concentrations, including some that were initially supersaturated, were placed into capillary tubes. The capillary tubes were then rotated at room temperature about their center point until solid material or semisolid material became visible to the naked eye. We analyzed these solids by x-ray powder diffraction and showed that we had generated two different solid forms. These were the original solid form reported in the

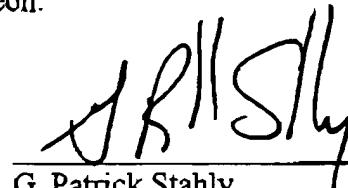
literature and one heretofore unknown solid form. The x-ray data confirm that the new form is indeed a new solid form, as opposed to, for example, a different crystal habit.

6. It is possible for one solid form to crystallize in different morphologies. However, techniques such as x-ray powder diffraction, as well as a variety of other techniques, will readily distinguish solid forms and confirm, for instance, whether different crystal morphologies are also different solid forms.

7. By comparison, as Example 1 goes on to say, when we used traditional solid form screening techniques such as fast evaporation and crash cooling, we only obtained the solid form reported in the literature.

I hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: April 4, 2003



G. Patrick Stahly